REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendment and following discussion, is respectfully requested.

Claims 33-35, 38, 39, 41 and 46-55 are presently active in the present application. Claims 1-32, 36, 37, 40, and 42-44 were previously canceled without prejudice or disclaimer. Claim 45 has presently been canceled without prejudice or disclaimer. Claims 54 and 55 have been added. Claims 33-35, 38, 39, 41 and 46-53 have been presently amended.

In the Office Action, Claims 33-35, 38, 39, 41 and 45-53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sano et al (U.S. Patent No. 6,407,405), in view of Boydston et al (U.S. 6,375,79), Anders (U.S. Pat. Appl. Publ. No. 2002/0000779), and Roth et al (DE 4007523).

Claim Summary: Claim 33 as clarified defines:

> 33. A substrate processing apparatus comprising:
> a processing vessel forming a processing space;
> a rotatable supporting table for supporting a substrate to be processed in the processing space, the substrate having a surface to be processed;
> a first ***remote*** radical generation unit, provided at a first sidewall portion of the processing vessel, for forming first radicals by a high frequency plasma and supplying the first radicals into the processing space ***through a first gas outlet provides at the first sidewall portion***;
> a second ***remote*** radical generation unit, provided at the first sidewall portion of the processing vessel, for forming second radicals by a high frequency plasma and supplying the second radicals into the processing space ***through a second gas outlet provides at the first sidewall portion***;
> a gas exhaust port, provided at a second sidewall portion of the processing vessel, to exhaust the processing space, the second sidewall portion being disposed opposite to the first sidewall portion with the supporting table placed therebetween,
> wherein the first and the second radicals are respectively introduced ***into the processing space*** from the first ***and the second gas outlets*** along a first flow path and a second flow path which are substantially parallel to the surface of the substrate mounted on the supporting table, and
> a flow adjusting plate ***provided in the vicinity of the first gas outlet and configured to change a direction of the first flow path by an angle θ to thereby direct the first radicals introduced from the first gas outlet along the first flow path whose flow direction has been changed***. [Emphasis added.]

Claims 33-35, 38-39, 41, 46 and 47-53 have been amended to clarify those technical features described at page 39, line 6, to page 41, line 13, of Applicants' specification. These clarifications are reflective of the Statement of the Substance of the Interview filed for the interview conducted on January 29, 2009. The amendment to Claim 38 is supported by page 38, lines 18-23, of Applicants' specification. Claims 54-55 are supported by page 39, line 6, to page 41, line 13, of Applicants' specification. No new matter has been added.

Accordingly, when considered as a whole, there is provided in Claim 33 first and the second gas outlets whereby first and the second radicals (from first and second remote radical generation units) are respectively introduced into the processing space along first and second flow paths which are substantially parallel to the surface of the substrate mounted on the supporting table. Moreover, there is provided in Claim 33 a flow adjusting plate provided in the vicinity of the first gas outlet and configured to change a direction of the first flow path by an angle θ to thereby direct the first radicals introduced from the first gas outlet along the first flow path whose flow direction has been changed and whose first flow path is substantially parallel to the surface of the substrate mounted on the supporting table.

As discussed during the interview on January 29, 2009, this feature is illustrated in one example by Applicants' Figure 4 which shows a side view of the first flow path (from source 26) being substantially parallel to the surface of the substrate, when taken into consideration with the top view shown in Applicants' Figure 10B, where the flow path from source 26 is dependent on angle θ.

Similar structures are defined in independent Claim 41.

Art deficiencies: Applicants respectfully submit that Claims 33 and 41 would not have been obvious at the time of the present invention over the cited references, since there is

no teaching, suggestion, or motivation in the cited reference for the claimed flow adjusting plate, discussed above. M.P.E.P. § 2144.04 VI. C. states:

> *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice). However, "the mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, ***without the benefit of appellant's specification***, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). [Emphasis added.]

Moreover, M.P.E.P. § 2143.03 requires that ***all words*** in a claim must be considered in judging the patentability of the claim against the prior art.

In the present case, the outstanding Office Action acknowledges on page 3 that Sano et al do **not** teach a flow adjusting plate. Thereafter, the Office Action relies on the pivotable diaphragm (6) of Roth et al for a structure in the art which it asserts to be comparable to the claimed flow adjusting plate.

Roth et al lack any teaching, suggestion, or motivation for directing the flow of boron vapor described therein. Roth et al merely state that the pivotable diaphragm (6) prevents premature boron evaporation onto a substrate (12). The attachment filed herewith reproduces Figure 1 of Roth et al on the first page. The attachment filed herewith shows on the second page both a diagram of the electron flow about the crucible 2 and a diagram of the effect of shuttering in Roth et al (if the boron were treated as a gas not sticking to the diaphragm).

The Examiner will appreciate that the pivotable diaphragm (6) of Roth et al merely just blocks the emission of boron vapor by intercepting with the evaporated beam of boron being emitted from the electron beam heated boron crucible. Indeed, the pivotable diaphragm (6) of Roth et al acts as a mere shutter onto which the emitted boron vapor ***sticks*** when the shutter is closed. Roth et al is silent on what is performed by the pivotable diaphragm (6) when the shutter is open. Thus, the pivotable diaphragm (6) of Roth et al has

nothing to do with a structural feature configured to direct a gas, a vapor, an electron or the like along a flow path substantially parallel to a surface of a substrate.

As emphasized on the second page of the attachment, the wavy line on Fig. 1 of Roth et al is the track of an electron beam used to heat the boron in the crucible and is **not** a track of boron vapor emitted from the source. While Roth et al have no description regarding the wavy lines in Figure 1, in the art of an evaporating, it is well known that an electron beam is curved by a magnetic field surrounding crucible (2), rather than deflection by a shutter.

Consequently, the Examiner is mistaken in asserting that the pivotable diaphragm (6) of Roth et al provides a motivation for adding a flow adjusting plate to Sano et al. Moreover, even if the pivotable diaphragm (6) of Roth et al were added to Sano et al, the pivotable diaphragm (6) of Roth et al would not provide a flow adjusting plate which would change a direction of the first flow path by an angle θ to thereby direct the first radicals introduced from the first gas outlet along a first flow path (defined in Claim 1) to be substantially parallel to the surface of the substrate mounted on the supporting table. Rather, the presence of a shutter blocking the gaseous source in Sano et al would merely randomly scatter the N radicals in Sano et al. Indeed, the second page of the attachment shows the scattering that would occur from the diaphragm (6) of Roth et al of the boron acted as a gas and did not stick to the shutter.

M.P.E.P. § 2141 II indicates that, in short, the focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and ***on what such a person would have reasonably expected to have been able to do in view of that knowledge***.

Here, a person of ordinary skill in the pertinent art would not have expected that adding the pivotable diagram of Roth et al to Sano et al would do nothing more than provide a shutter to randomly scatter the N radicals, and not result in the claimed deflection along the

first flow path substantially parallel to the surface of the substrate mounted on the supporting table.

Hence, a combination of Sano et al and Roth et al would not meet all the claimed elements. Thus, the rejection under 35 U.S.C. § 103(a) to Claims 33 and 41 (and the claims dependent therefrom) should be removed. and these claims passed to allowance.

Moreover, regarding new Claims 54 and 55, Applicants submit that Sano et al and Roth et al are silent on the structural features for directing a first flow path toward the substrate. Specifically, the boron vapor that has been directed by the pivotable diaphragm (6) propagates apart from the substrate as seen from the attachment.

The Examiner's full consideration of new Claims 54 and 55 is requested.

Conclusion: In light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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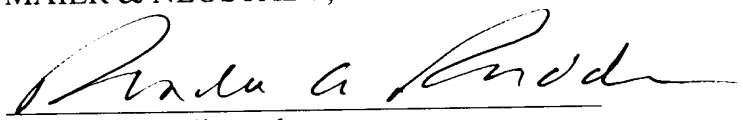

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